

AMATEUR RADIO

NOVEMBER, 1957

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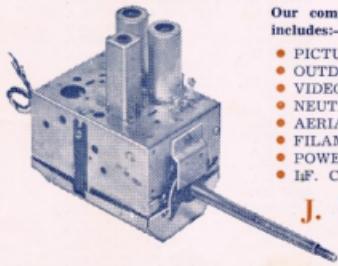
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EDITORIAL



SHORT WAVE LISTENERS' GROUPS

It was gratifying that the Federal President was able to report to the recent Federal Convention that "Short Wave Listeners' Groups are flourishing and many young potentials are becoming interested in this way which, when all is said and done, is the way most of us started out in Amateur Radio ourselves."

There is no doubt that any positive action we can take to interest young people in radio is a step in the right direction and it is hoped that the Councils of all Divisions will do everything possible to develop and encourage Short Wave Listeners' Groups, so that our numbers will be increased by a steady flow of fully licensed Amateurs, who have already gained valuable knowledge of our bands by consistent listening to our methods of procedure and practice.

This section in each Division should be under the charge of some of our most experienced members, as it provides the Institute with a splendid opportunity to commence basic training with the ultimate in mind that these young enthusiasts will join W.I.A. training classes and eventually secure their A.O.C.P. with admission to our ranks as full members.

If this step is too severe, such people would be able to graduate to a standard such as is covered by the Novice License for which they could be more easily trained.

The advent of the Russian satellite has given us another opportunity to show how Amateur Listeners can be of service to the community and if we had strong well organised Short Wave Listeners' Groups in each State of the Commonwealth we would no doubt find many opportunities to continue this work and engage in worthwhile plotting and ionospheric experiments.

Anyone with an interest in National affairs will be able to support the many well informed scientists in this country and overseas who stress the importance of each country having large numbers of trained radio, radar and technical people, and we are sure that the Wireless Institute of Australia can assist the authorities in a real and worthwhile manner by training and encouraging all who desire to further their studies in scientific and technical matters.

The Federal Council trusts that all Divisions will place this matter in the forefront of their interests and would be pleased to know that strong, active groups are flourishing in all Divisions of the W.I.A.

FEDERAL EXECUTIVE.

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Using Modern Valves in the Type 3 Receiver

BY N. R. BOASE,* VK3NI

THE A.O.C.P. was obtained in 1939, and before operation commenced there was a war on. It is perhaps not surprising then, that the first rig, when the time came, was a Type 3. In fact, it is the only rig the author has ever had much to do with. Experience is thus somewhat limited, and the first feelings when trouble appears are of distaste and dismay. And that is how it was that time when the receiver performance suddenly fell off to practically nil, and the v.c., so far as it worked at all, worked backwards.

The eight pin positions were marked on this circle. The soldering iron was applied to a length of heavy busbar about 1" from the end. The end of the heated busbar pushed easily through the perspex to stick out the other side and form a pin for the adaptor. A miniature base was fitted to the other side of the perspex, supported only by the busbars soldered to its lugs, and an adaptor was obtained.

Care had to be taken in plugging it in—it had no key, only a mark where the key should have been.

Eventually it was noticed that V2A had a very much lower screen voltage than V2B. These are both 7R7s, and an examination of the circuit disclosed no reason why screen voltages should differ. The tubes were swapped and now V2B had the lower screen voltage. Obviously one of the 7R7s was drawing excessive screen current and had reached the end of its useful life. Which one to replace? Base V2A was the easier to get at, so it was chosen.

Now the 7R7 is a duo-diode-pentode. But V2A needs only to be a pentode. The reason for using a 7R7 was, of course, that the number of spares needed was thereby reduced. There seemed no point in using such a tube now, so replaced it with a remote cut-off pentode, a 6BA6.

It was now a really excellent little receiver, better than new, with just one bug—V1B went into oscillation just under full volume. It was assumed this was not due to wiring faults, but simply to inter-electrode capacitances and high-gain conditions. Different values were tried for neutralising condenser C14. It might have been possible to clear up the trouble this way, but with the range of capacitance available at the time it either (a) didn't clear it up, or (b) brought about a too-heavy reduction of gain. Eventually it was silenced with an un-bypassed resistor of 1K in the cathode. While stopping the racket, this did not seem to affect gain materially. The absence of C14 during these experiments did not seem to have any effect at all so was left out. Also, the recommended cathode resistor to V2A was not fitted, and it isn't there still!

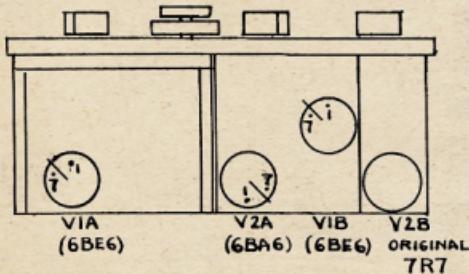


Fig. 1.—Location of gaps between pins one and seven.

This receiver is a very straightforward job when one gets to know it. Over recent months the writer has got to know it—it was do so or write her off. But at the start of this story it was a mysterious box full of valves, wires, etc.

Volume control on the Type 3 is by bias variation. The power supply delivers -12½v. to the volume control and the grids of the first three valves are returned to the sliding contact. The power supply was checked, in fact delivering its -12½v., and followed this into the set and found that the volume control was OK and duly delivering negative bias at its sliding contact.

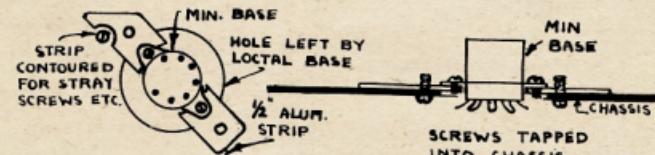
This bias could not be traced through to the actual grids, as the meter draws appreciable current and high impedance filters lay along the path. For the moment, no ideas came to mind. Then a note was discovered in the handbook to effect that if the volume control will not work that means V1B has gone soft. V1B and VIA were swapped; no improvement. So they were both soft! Well, buy a new pair. But the 7Q7 is unprocurable!

After some study it was decided to substitute 6BE6s, and immediately the problem of bases arose. Adaptors were made with less trouble than had been expected. Two pieces of perspex sheet were trimmed into very odd shapes, to make them fit in among the i.f. cans, etc., and sit flat on the bases of VIA and V1B. A circle was drawn on each, whose diameter was equal to the diameter of the circle of pins of a 7Q7.

So eventually the receiver was operating again, with two 6BE6s instead of 7Q7s. She came to life, but (a) she was full of birdies, and (b) the volume control still worked backwards.

Deciding to deal with the troubles one at a time, the birdies were tackled first—a bug which was not unfamiliar.

The wiring in the adaptors was not too much of a tangle, but it was, of



Figs. 2a. and 2b.—Methods of mounting miniature bases.

course, suspect. Anyway, the adaptors made the tubes so tall that the receiver wouldn't go back into its case. So, making careful notes about the connections, the loctal bases of VIA and V1B were removed and replaced with miniatures. In case you ever have to do this, Fig. 1 shows the better direction for pointing the gap between pins one and seven in the case of each tube, and Figs. 2a and 2b show how to mount the miniature bases in too-large holes.

This improved the birdies a bit, but not much. While gazing gloomily into the works, performance fell way off again. It was tossed in and went to seek a beer or two.

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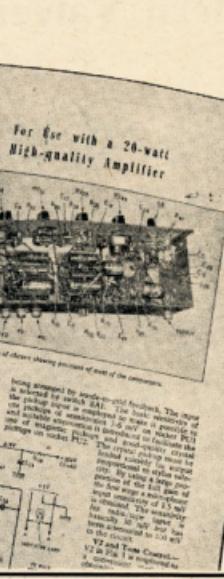
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AMATEURS AND SALES TAX

SOME COMMENTS IN FEDERAL PARLIAMENT

The following extract from Hansard (H. of R. No. 12, 17th-19th September, 1957) is part of a speech made in the Federal Parliament by the Member for Maranoa, Mr. Brimblecombe. It is printed because Amateurs may find many points of interest.

Mr. Brimblecombe: ". . . the next matter to which I turn is the sales tax. I know that in this budget some items have been exempted from sales tax and that on other items the rates have been reduced, but I desire to raise the matter of sales tax on the equipment used by Australian 'ham' radio operators. The Wireless Institute of Australia has for many years been asking the Government for some sales tax concessions for parts of equipment used for this very worthy purpose. We all know what a wonderful job these amateur radio operators do in the community. Their wonderful work in providing communications in times of bush fires and floods has been recognised. They have done a remarkable job. As a matter of fact, one of them was decorated with the M.B.E. for his work recently during floods in New South Wales."

Mr. Haylen: "In Maitland."

Mr. Brimblecombe: "Yes. He saved many lives. He was the only means of communication that the floodbound people had with the rescue workers using 'walkie-talkie' equipment on amphibious ducks and with the outside world. I think I could best put the case of the amateur radio operators by giving a summary of their activities and the reasons why sales tax exemptions should be granted to them."

The Wireless Institute of Australia is probably the oldest organised body of amateur radio operators in the world and is therefore in the unique position of having fostered the development of communications and technical advances since the inception of the radio art. Much of the pioneering of high frequency, very high frequency and ultra high frequency techniques has been done by enthusiastic amateurs. The records of the institute show that amateur radio operators have made many outstanding contributions in the public interest. As far back as 1911, an amateur radio operator was responsible for saving a ship in distress, and since then radio operators have played a major part in developing and operating bush fire and flood relief networks, the location of missing aircraft and the transmission of traffic to Tasmania during cable breakdowns, and air race communication networks. Apart from this, a vast amount of data has been compiled, and this has played no small part in perfecting the propagation prediction methods used by communication services throughout the world.

These people also made a wonderful contribution during the two world wars. Amateurs filled important posts in the communication branches of the three fighting services and augmented the ranks of marine operators. Apart from this, the institute conducted basic training classes as its part of the war effort. Between the two wars, the institute organised the Royal Australian Air Force Wireless Reserve and regular

exercises were inaugurated. As a result of this, on the outbreak of World War II, a large number of members immediately joined the armed forces to take up important posts not only in the Royal Australian Air Force, but also in the Navy and Army. Prior training had fitted them to undertake highly technical assignments. In keeping with this policy, since the cessation of the last war the institute has organised emergency networks under the title of Civil Defence Emergency Networks and maintained a high degree of interest. This network is available to the authorities in time of need and has the added advantage of extreme flexibility. When moments of emergency arise due to floods, fires and so on, because of his training and knowledge of equipment the amateur is able to maintain communications. This has been amply demonstrated in recent flood emergencies in New South Wales.

In the industrial sphere, the amateur has played, and continues to play, an important part. Much of the knowledge acquired in his experiments goes into the perfection of some project or product. Because of his special understanding of frequency modulation and radar techniques the amateur was able to help materially in the establishment of the television industry, and many are engaged in their own television experiments.

A firm basic training is fundamentally a part of institute policy. Classes are conducted to train young enthusiasts to the standards required by the Postmaster-General's Department for the amateur operator's certificate of proficiency. Ability to plan and construct is a part of the amateur's make-up. In the early days, each amateur had to design and make the major portion of his equipment. Today, although most components can be purchased, it is still necessary to build them into one unit in such a manner as to suit particular requirements. The equipment for emergency networks is specially designed for the work and represents an appreciable outlay, for which the amateur neither receives nor expects reward.

In order to lessen the cost of equipment, which the amateur uses either to widen his knowledge of electronics, or to help maintain communications in times of emergency, the institute has, from time to time, approached the Commissioner of Taxation with the request that sales tax be removed from components used in communication transmitters and receivers. Unfortunately, the commissioner has been unable to give effect to this request. One difficulty was the policing of such a scheme. The federal executive and divisional councils of the institute, after long and careful investigation, reached the conclusion that a system based on the provision of a special application form allowing sales tax exemption would be workable. Responsible officers of the institute would be willing to investigate the bona fides of any applicant, whether a member of the institute or not, and arrange that the necessary exemption be issued by the taxation authorities. In this way, no extra work

or cost would be incurred by the Taxation Branch. An exemption could be issued to study groups or clubs so that they could purchase equipment for training and stations. In these circumstances, some person would be required to become the responsible officer. These clubs, apart from interesting lads at a very impressionable age, would form vital links in any emergency network.

"Looking to the future, the institute believes that any steps which encourage the training of more personnel in the scientific field are valuable. If some relief from sales tax can be given, the return to Australia in trained and enthusiastic operators will be invaluable.

"Tributes have been paid to this wonderful organisation for the work that it has done. I shall cite a tribute paid by the Postmaster-General (Mr. Davidson) to the work done during the New South Wales floods. He said—and this is reported in 'Amateur Radio,' of October, 1950—

"In a recent broadcast over 2KM Kempsey in connection with the recent widespread floods in New South Wales, I made appreciative reference to the assistance given by the licensees of Amateur Wireless Stations.

"Since then, I have received further information of the part played by members of the Institute, both in the Kempsey area and also in other parts of the State affected. Accordingly, I would now like to confirm in writing the sentiments expressed over 2KM, and to say how pleased I am with the readiness shown, once again, by Amateur Operators to perform a public service, in times of emergency, with the facilities for which they are licensed."

"That speaks volumes for the wonderful work these people are doing. I shall now outline the cost to the Government if amateur radio operators are given some sales tax concessions. Active amateur operators number about 2,500, and they spend an average of about £20 a year. The total amount spent would be about £50,000. Of this, 25 per cent. is sales tax on parts and equipment. Therefore, the cost to the Government would be about £10,000. This is not a great deal to pay for this form of defence preparedness when nearly £200,000,000 is voted for defence in the budget.

"Amateur radio operators not only do wonderful work in maintaining communications in time of emergency, but also maintain contact with amateur operators in other countries, and even behind the iron curtain. Radio 'hams' throughout the world are in communication with one another day and night. Their contact does a great deal to cement international relationships, and their work in this field should be recognised. I hope that the Government will sympathetically consider the request made by the Wireless Institute of Australia.

"I am able to speak with a little first-hand knowledge on this subject, because I have a 'ham' operator on my property, and I know something of what his radio activities mean. This amateur radio work not only is of wonderful assistance to the community in

(Continued on Page 7)

Polarisation Effects in V.H.F. Mobile*

Some Evaluation Tests on Mobile Antenna Systems for 50 and 144 Mc.

BY EDWARD P. TILTON,† W1HDQ

ITS effectiveness in working mobile stations is a time-honoured argument for sticking with vertical polarisation, in the areas where it is still in use. Admittedly, vertical mobile antennae are usually more pleasing to the eye, and mounting them is generally a simpler matter than is the case with any practical horizontal mobile antenna. But skipping the esthetic and mechanical aspects, how important is it that vertical polarisation be used, if satisfactory coverage is to be obtained in working with mobiles on 50 and 144 Mc.?

Many horizontal antennae for 2-metre mobile use have been described in "QST" in recent years.¹ A 6-metre halo was built and described by W1MUX some years ago.² We know how to do the horizontal job; the question here dealt with is how much difference does cross-polarisation make, assuming that a horizontal array is used at the fixed station? To tell our story we'd better start with a description of the antennae used.

HALOS FOR 6 AND 2

For tests on 144 Mc. we used a rather hairy halo made by the writer in a total elapsed time of about 30 minutes. Perhaps other lazy individuals who want to try horizontal mobile antennae would be interested in the mechanical details. The main support is 19" high. It was cut from a section of an old t.v. antenna element, used because it was light in weight, and because its $\frac{1}{2}$ " size made a nice tight fit in the sleeve of a standard Amphenol male co-axial fitting. The "no-holes" mount on the rear deck (a clip of stiff aluminum fastened to the inside of the rain gutter with self-tapping screws) has a matching female fitting, and a co-ax lead running up to the dash where the rigs are operated.

The roof-top mounting was made of flashing copper, bent into a cube slightly larger than the co-axial fittings. The inner conductors of the two fittings are connected by a short wire inside the box, and the lips of the box are soldered to a flat plate of flashing copper, about 3" x 6" in size. The plate is held on the car top with black plastic tape, the bottom of the plate having first been covered with tape to prevent its disfiguring the car top in any way. A length of RG-58/U co-ax is brought forward to the rain gutter, and run around to the corner of the door, where it is protected by the rubber bumper on the door casing.

The halo is $\frac{1}{2}$ " aluminium rod 38" long, bent into a circle. Ends of the element are about 4" apart, though the exact size of the circle made does not seem to be critical. The co-ax is run

up through the tube, from the co-axial fitting at the bottom, and out through a hole near the top of the support. The black covering is cut back below the point at which the lead emerges, to allow the outer conductor to make contact to ground at that point. The hole should be of such size that the lead with its braid cover will just pull through it.

The inner conductor is the arm of the gamma match, connection being made to the element by means of a small aluminium clamp. Originally a variable capacitor was used in setting up the match. The best value was close to 25 pF, so a fixed capacitor was substituted. Connection at 4" out from the centre of the support provides an s.w.r. of under 1.5 to 1 across a considerable frequency range in this installation. Make your own adjustments of capacitor and connection point, if you like, but do it with an s.w.r. bridge, not a field-strength meter.

The 6-metre halo is a commercially-available unit known as the "Saturn 6 Mobileer," made by the Wholesale Supply Co., Lunenburg, Mass. It arrived for technical evaluation just as we were starting tests on 144 Mc., so we decided to make the investigation a two-band project, inasmuch as we already had provision for operation on both 50 and 144 Mc. with vertical whips.

The "Saturn 6" was attached to a standard bumper mount provided by the manufacturer. It stands just over 6 feet above ground in this position. (An extension support for up to 12 feet or so could be used for stationary operation.) The 6-metre whip could be inserted in either the roof-top or rear-deck mounts.

A ski-rack-mounted turnstile for 144 Mc., made by W1DXE, was borrowed for some comparisons. This was originally a single dipole, and as such was pictured in "QST".¹ It was converted to a turnstile later, in the hope of providing more omnidirectional characteristics. It consists of two split dipoles fed 90 degrees out of phase through a quarter-wave loop of co-ax.

The home-made halo for 2 was tried in both mounts. It showed somewhat more directional characteristics in the rear-deck position than on the roof-top, but otherwise there was little difference in either transmitting or receiving results. Co-axial leads from all three mounts were brought up to the dash, where a co-axial switch was used to select the antenna desired. Thus, it was possible to make instantaneous changes from horizontal to vertical, while transmitting or receiving on either band. Gonset Communicators for both bands were used in the tests.

A v.h.f. mobile enthusiast for more than 20 years, with experience in all parts of the United States, the writer has observed the vagaries of v.h.f. propagation firsthand in all sorts of terrain. Most of this work has been done

with vertical whips, though various forms of horizontal antennae have been tried at times. From this experience it was obvious that matched polarisation paid some dividend. Equipment improvements in recent years have netted a considerable extension of our all-round v.h.f. coverage, however, even though there has been an almost country-wide swing to horizontal arrays at home stations, and thus much more cross polarisation in mobile operation with vertical whips.

Where both horizontal and vertical were available at home stations, we have found frequent instances where our mobile whip received an equally good signal, regardless of the polarisation at the home station. The degree to which the polarisation seemed to be rolled over has been quite closely related to the roughness of the terrain. Our worst mobile-to-fixed-station coverage, with cross polarisation on both 6 and 2 m, was in the flat open country of the Middle West. As nearly all past experience with cross polarisation was gained with vertical whips on the mobile and horizontal beams at the fixed station, we were curious to learn whether horizontal systems on the car would show consistent improvement, and if so, how much?

Since the installation of the quick-switch system in the car we've had little opportunity for work over flat terrain, Western New England being mostly up on edge. We have tried all the kinds of paths we can find around the Hartford area, however, and conditions simulating those of flat terrain have been found in spots.

RESULTS ON 144 Mc.

We have used the 144 Mc. facilities of W1DXE-VLH extensively, as the 32-element horizontal array at that West Hartford station is more than 100 feet above ground, clearing all obstacles for a mile or more in all directions. Within five miles signals are so strong that little or nothing can be told about antenna differences, but over the mildly rolling terrain to the southwest signals get "off the pin" at about 7 or 8 miles. To the west, the route the author takes in going home each evening, a steep hill rises about 600 feet above average terrain at a distance of about 2 miles from the fixed station. Over the ridge of the hill the terrain drops even more sharply back to nearly the level of the eastern side, but the route winds behind other hills within 10 miles or so of travel. Hundreds of readings have been taken on 144 Mc. in these areas.

Out to and slightly beyond the visual horizon in open terrain the 2-metre halo shows a consistent superiority, the average in its favour being about 15 db. Very few spots can be found where the vertical whip approaches the signal level afforded by the halo, though both are entirely satisfactory. In the rolling terrain, at distances of 8 to 20 miles

* Reprinted from "QST," December, 1956.

† V.H.F. Editor "QST."

¹"The World Above 50 Mc.," "QST," Feb.

1956, p. 55; Aug., 1956, p. 59.

² Stites, "A 'Halo' for Six Metres," "QST," Oct., 1947, p. 24.

or so, the margin between the two decreases gradually, running mostly between 6 and 10 db.

Working over the "mountain" (apologies to Westerners) there is also some advantage in matched polarisation, but it is slight. There are many places to be found, by slow jockeying of the car position, where the vertical whip provides as strong a signal as the halo, and there are spots where cross polarisation shows as much as 20 db. superiority. In the town of Collinsville, 12 miles and three ranges of hills to the west, some nearly dead spots can be found. Here many miles and much round-and-round-in-circles driving has shown the average gain with matched polarisation to be just enough to make the difference between the two plainly audible, as little as 3 and 5 db.

On an elevated ridge in Burlington, where signals from all up and down the Connecticut Valley are strong, polarisation discrimination is partially restored. On still higher elevations, where pure line-of-sight obtains, stations many miles distant show very clean polarisation.

One dividend from the use of the halo on 50 Mc. was greatly reduced ignition noise, both from our own car and others. Noise from the writer's car is barely audible at moderate driving speeds, even when the limiter on the Communicator is cut out. Switching to the whip brings in a deafening clatter. Reduction of ignition noise from other cars is at least as marked when the "Saturn 6" is in use, resulting in a considerable improvement in the readability of weak signals when driving in traffic. Oddly enough, this nice state of affairs did not show to so great a degree on 144 Mc.

Another difference between 50 and 144 Mc. showed up in the course of these checks. It had been observed before in working with the vertical whips, but it became much more obvious with horizontal polarisation. With horizontal antennae at both the fixed and mobile stations, the signals on 50 Mc. are much more constant in level than on 144 Mc. Particularly where the fixed station is using a good beam, the annoying flutter so characteristic of v.h.f. mobile work almost disappears. We have had no end of comments about this from fellows we've worked with the "Mobileer." Unless they watch the S meter closely they find it hard to tell whether we're moving along the highway, or standing still. The fluctuation in signal level on 144 Mc. is somewhat less with horizontal polarisation than with vertical, but it is still plainly noticeable.

SOME RANDOM OBSERVATIONS

What is the respective merit of roof and rear-deck mounting with vertical whips? We've always assumed that the ideal place for a 144 Mc. whip was on the car top, though we have used the rear-deck mounting for esthetic reasons. Our test set-up afforded a fine chance to run down some information along this line. Identical 19" whips were installed on the roof and rear-deck, and then switched back and forth on countless occasions. At a given spot there would be a difference between the two, as multiple reflections happened to add with one and cancel with the other, but

with the car moving along there was no observable difference in average level. If anything, the car body introduced a bit more in the way of directional effects with the rear-deck mount, but the over-all advantage of the roof mount was so slight that we removed it once the testing was completed.

How good is a halo? We knew that both the 6 and 2 metre halos made our reliable range somewhat greater than we enjoyed previously with the whips, but we had no measure of their effectiveness until the 6-metre unit was tested against the 3-element portable array described in August "QST," page 35. The latter was connected into our quick-switch arrangement a few times when we were operating from some of our pet locations. Both it and the "Mobileer" were adjusted for minimum s.w.r. at the frequency of operation, and the rig loaded to the same power input to the antenna. Results: stations worked (at distances from local to 150 miles or so) reported the 3-element beam as two to five S-units stronger than the halo. On reception the difference was estimated at an average of 12 db. A reasonably accurate measure of received signal differential was made with a signal generator, by checking the input signal required for various degrees of green-eye closure on the Communicators.

AND A CONCLUSION OR TWO

Going to horizontal polarisation appeared to give us a definite edge in reliability and coverage over what we have encountered in vertical-to-vertical and cross-polarisation work in the past. Certainly the horizontal combination gives improved signal-to-noise ratio, this difference being particularly marked on 50 Mc.

Horizontal at both ends of the circuit makes 6 metre mobile a real pleasure. Contacts with well-equipped home stations are almost noise-free out to 25 miles or so, in all but the worst terrain. Satisfactory communication out to 50 miles is frequently possible, and we've heard some surprisingly good signals at 100 miles or more, while driving in quiet areas. There was no DX during the period of the tests, but we anticipate that the improved signal-to-noise ratio of the halo will make 6 metre DX hunting more fun.

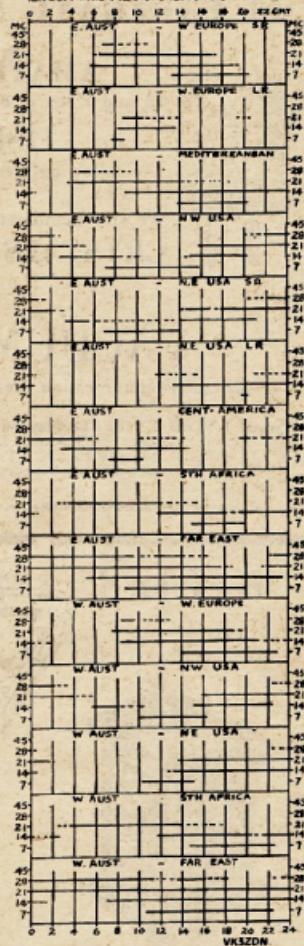
But cross-polarisation, which is likely to cause less trouble if you have an esthetically-sensitive family, is not bad. Conversion to horizontal polarisation on the part of every v.h.f. station in the country would by no-means rule out the interesting and useful mobile operation on 6 and 2 metres by the fellow who will have nothing more obtrusive on his car than a simple vertical whip.

If you would get the most out of gear for 6 or 2 metres, installed in your car, you'll want to try the horizontal systems. If the wife will take it, you'll want something as good as W1DXE's turnstile for 2, and the "Mobileer" or its equivalent on 6 metres. And don't pass up the portable beam idea. You'll never know the fun of v.h.f. work from the high spots until you pack along the biggest arrays for your favourite band that you can store in the rear deck of your car.

DO NOT FORGET!

The closing date for copy for the January issue is 2nd December.

IONOSPHERIC PREDICTIONS FOR NOVEMBER 1957



AMATEURS AND SALES TAX

(Continued from Page 5)

time of emergency, but also is a wonderful hobby, and it should be encouraged. I leave the matter there. Mr. Temporary Chairman, I hope that honorable members will make themselves more familiar with the fine work that amateur radio operators are doing. I am sure that if honorable members learn more about it, they will support the request that these operators be given some concession."

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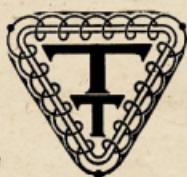
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VK— New South Wales
 2NV—J. V. Smith, Farm 237, Griffith.
 2XF—C. H. Newstead, 6 Coronation Ave., Five-dock.
 2ADR—D. W. Reed, 8 The Avenue, Waitara.
 2BZB—M. T. Morell, "Araluen," Nyngan.
 2CF—W. A. Ferres, 21 Jeffers St., Noble Park.
 2SF—R. M. Tutton, Lot 86, Wheatsheaf Rd., Glenroy.
 2AKQ—A. E. H. Swindon, 5 Olive Ave., Pascoe Vale.
 2AMG—C. W. Meech, 79 Balacava Rd., Caulfield.
 2ATP—R. T. Forster, 57 Robinson St., Moonee Ponds.
 2AU—A. Lock, Smoko, via Bright.
 2AWP—C. T. Mackay, 23 Gloucester Rd., Werribee.
 2EM—J. L. Morris, 224 Burwood Rd., Burwood.
 2EN—J. P. Newdick, 14 Rippon St., Footscray.
 2EHS—H. J. Simmons, 280 Gillies St., Fairfield.
Queensland
 4AR—Capalaba Amateur Radio Club, C/o J. Wright, Coynes St., Kirra.
 4VW—V. J. Ryan, Ann St., Nambour.
 4BD—D. B. Hughes, 8 Miller St., Hill End, Brisbane.
 4ZBH—T. H. Barber, 73 Meriton Rd., Kelvin Grove. South Australia
 5GR—H. E. A. Gehrk, 9 Norma St., Mile End.
 5LJ—W. B. Legg, McPherson St., Penola.
 5MP—G. S. Coombe, 1 Everett St., Brooklyn Park.
 5SX—K. C. Waterlander, 32 Almond Grove, Glandore.
 5XN—L. M. Mullins, 47 Robson St., Parkside.
 5ZB—K. L. Metcalf, 69 Castle St., Edwards-Wingfield.
 5ZBX—B. N. Dale, 40 Balliville St., Prospect.
 5ZCR—A. C. Rechner, 38 Payneham Rd., St. Peters. Western Australia
 6AJ—A. J. Jeffrey, 8 Stone St., South Perth.
 6CR—C. Rutledge, 449 Charles St., North Perth.
 6ZBR—E. S. Brewer, 95 Edward St., Osborne Park.
Tasmania
 7ZAE—M. F. McMeekin, Cable Station, Naracoorte King Island.
 7ZAI—D. A. H. Thorne, 265 Park St., Hobart.

CHANGES OF ADDRESS

VK— New South Wales
 2AZ—H. L. Day, 22 Hood St., Yagoona.
 2CG—H. E. Chinier, 458 President Ave., Kirrawee.
 2EA—I. Martin, 166 Dobie St., Grafton.
 2GD—K. H. Hattan, 35 Boorlong Rd., Pymble.
 2KW—L. D. Wilson, 11 Ross St., Epping.
 2LH—T. G. Hewitt (Dr.), 31 Ulalia St., Lismore.
 2YT—G. R. Woodward, 49 Cardigan St., Auburn.
 2ABX—R. C. Gibson, 15 High St., Newcastle.
 2AMH—J. R. Howard, 45 Kamarlooy Rd., West Pymble.

2ASH—J. A. Hodgson, 20 Northcott Pde., Wangaratta.
 2ZCM—S. B. McGregor, 3 Walworth Ave., Newport. Victoria
 3FQ—A. C. Yeomans, 11 Hillside Rd., Mt. Waverley.
 3HR—H. L. Roberts, Best St., Sea Lake.
 3SS—K. V. Scott, Princes Highway, Noble Park.
 3AAM—A. H. Sengotta, 9 Elysium Crescent, Huntingdale.
 3ADW—A. W. Wardlaw, 21 Torment St., North Balwyn.
 3AMC—J. McDonald, Hampton Villa, Princes St., Drysdale.
 3AVG—R. W. Miat, 27 Albert Cres., Surrey Hills.
 3AWC—W. J. Currie, 9 Soutar St., Eltham St. Queensland
 4ZS—C. E. Ryan, 114 Stanley St., Rockhampton.
 4ZAV—W. A. E. Flannery, Wishart St., Mt. Gravatt, Brisbane.

South Australia

5CF—M. T. Nicholson, Station: McIntosh Ave., Grosvenor Postal: P.O. Box 64, Glossop.
 SEU—H. S. Young, 7 Northumberland St., Tumut.
 5FP—F. C. Purcell, Main Rd., Clarendon.
 5JH—V. Chemnelli, 15 Third Ave., Ascot Park.
 5KJ—G. W. Connon, C/o Station SLN Residece, Lincoln.
 5KN—R. S. McKenzie, Private Rd., Victor Harbour.
 5KS—R. A. Sedunary, 13 Langham Tree, Unley.
 5LL—G. E. Lucas, 19 Wilpuna Tree, Kelkenny.
 5OJ—S. Stewart, 51 Fuller St., Walkerville.
 5PF—D. McI. Robson, 21 Judd Rd., Elizabeth South.
 5WR—W. L. Russell, 77 Church Tree, Walkerville.
 5ZDF—R. A. Washington, 40 Swaine Ave., Rose Park. Western Australia
 6DT—W. R. Woodley, 52 Marrawa Way, Mandurah.

CALLED CALL SIGNS

VK— New South Wales
 2OX—J. Stevens, Transferred to S.A.
 2AAA—N.S.W. Signals Radio Club.
 2AO—N. S. King.
 2AKB—K. B. Brown.
 2AVE—C. W. Meech, Now VK3AMG.
 2AVR—V. M. Rowsell.
 2ZCJ—J. V. Smith. Victoria
 3BX—G. W. Hitch.
 3OP—J. Kossek.
 3P—J. J. Mills.
 3XN—M. C. Cummings.
 3YC—J. A. O'Shannessy.
 3ANU—R. G. Coffin.
 3ARI—R. M. Tutton, Now VK3SF.
 3ZBA—W. A. Ferres, Now VK3GF. South Australia
 5RC—R. Bennett.
 5VW—V. J. Wilson. Western Australia
 6ZAE—L. K. Earp. Tasmania
 7RF—R. T. Foster, Now VK3JATF.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

VK— New South Wales
 2HL—T. H. C. Lapthorn, 323 Pacific Highway, Artarmon.
 2OI—T. C. Bower, 17 Oaks Ave., Dee Why.
 2QZ—T. R. Black (Dr.), 2 Yerton Ave., Hunters Hill.
 2ABP—T. R. G. Dunford, Dulgarro St., Coombaburra.
 2AVJ—T. W. B. Jones, 30 Little Rd., Bankstown.
 2AZG—T. R. G. Grouse, 17 Ivanhoe St., Marrik Park.
 2ZAN—T. N. North, 18 Gladstone St., Bathurst. Victoria
 3BU—T. W. A. Brownbill, 79 Gheringhap St., Geelong.
 3ABK—T. R. J. Heighway, 22 Leonard St., Belmont, Geelong.
 3AEH—T. E. J. Blackney, C/o. Whittington P.O., Geelong.

C.D.E.N. NEWS

As outlined in the VK4 Notes for October, on the 23rd August, Queensland members of C.D.E.N. were given the opportunity of taking part in full scale exercises designed to explore the effectiveness of C.D.E.N. in the case of a city disaster. Three networks were used—one mobile on 144 Mc. band, another mobile on 7 Mc. band and the third city to country network. After the mobiles had reached their posts, units were moved in to take over for permanent posts as they were established at strategic positions. We hope that more exercises of this type will be arranged in all States.

We were pleased to receive a copy of documentation in which the practical efforts of South Australian Division to ensure the success of C.D.E.N. in that State.

On 8th October communications specialists assembled at Mt. Macedon Civil Defence School to consider the findings of previous Communications Discussion Groups. The Institute was officially represented by Mr. George Robertson, General Secretary, VK3AG; Mr. Vince Jeffs, VK4VJ. Other Amateurs present representing their particular organisations were Harry Hannam, VK3; Evan Fell, VK4EF; Herb Springer, VK3ES.

Nine talks were given by members of the Group. The first talk was by Sir Giles Chippendall (Director, Posts and Telegraphs) who was followed by a number of senior officers of his Department. Many aspects of the Department's emergency plans and potentialities were presented.

Representatives of other bodies including two representatives of the Institute (George Robertson and Vince Jeffs) outlined the activities and proposals of their own organisations.

During the progress of the session the Federal Co-ordinator, VK3AG, and the VK3 Co-ordinator, Reg Busch, VK3L, visited the School and joined in an informal meeting of W.I.A. interstate members. Many interesting and valuable suggestions for the improvement of C.D.E.N. were offered.

One of the most valuable suggestions was that the title of C.D.E.N. be changed to W.I.C.E.N. Such a change would achieve the following advantages:

- (1) The word W.I.C.E.N. in addition to retaining our identity as W.I.A. network, would adequately describe our function, that is Wireless Institute Civil Emergency Network.
- (2) Remove the misconception that C.D.E.N. means our activities are related only to Civil Defence.
- (3) Provide a word suitable for use phonetically, moreover, or as telegraphic address.
- (4) Eliminate any confusion with C.D.O. activities.

Before printing Authorisation Cards, this proposal will be submitted to a vote of Federal Council. When the original title was selected by Federal Council it was done with the object of extending pre and post war emergency activities to cover every kind of emergency. The proposed title W.I.C.E.N. seems to apply to these requirements as well as providing the additional advantages outlined above.

In conclusion, we must record that both the official and unofficial discussions at Mt. Macedon have been most fruitful and enlightening.

The high esteem in which the Amateur's work in the emergency field is held was clearly indicated by the desire of all organisations to have him integrated into the general communications plan.

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Telegrams: "Metals," Melbourne.

RADIOTRON TELEVISION VALVE SERIES

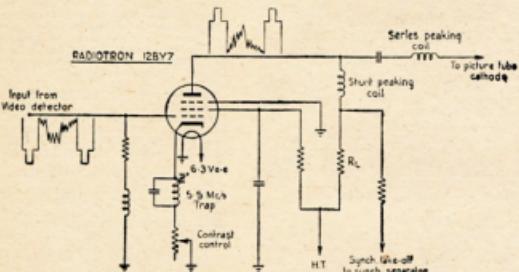
TV VIDEO OUTPUT STAGE

The television receiver video-output stage is required to amplify, without compression, the output from the video detector to a level which is sufficient to modulate fully the electron beam in the picture tube. The level required is normally in excess of 100 volts peak-to-peak. The frequency spectrum of this signal, which includes both picture and synchronising information, can include components extending from 25 c/s to as high as 5 Mc/s.

To maintain the desired pass-band shape a low plate-load resistance is used in association with peaking coils. The higher the circuit capacitance (which consists of the output capacitance of the video amplifier valve, the input capacitance of the picture tube and stray capacitance) the lower must be the load resistance and the more difficult is the practical achievement of the desired gain bandwidth product.

To achieve the necessary gain and output with the low plate-load resistance, a high transconductance valve capable of a relatively high plate current swing is necessary.

A typical video-amplifier circuit is discussed in Radiotronics, April, 1957. A simplified circuit is shown below.



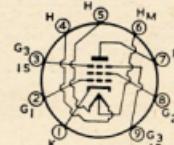
The Radiotron 12BY7 is a 9-pin miniature valve designed specially to meet the requirements of the video output stage. Its transconductance of 12,000 μ mhos enables adequate gain to be realised with low plate-load resistances, and its large signal handling capacity ensures compression-free amplification. The low output capacitance of this valve assists in keeping the circuit capacitance to a minimum, thus facilitating the stage design. The centred-tapped filament enables it to be used with both 6.3 and 12.6 volt supplies.

tFor further information on the 12BY7 and other Radiotron Television Valves, consult the TV1 Booklet. Additional copies of this advertisement are available free and post free on request.



12BY7^t

SOCKET CONNECTIONS



(bottom view)

- Pin 1 — Cathode
- Pin 2 — Grid No. 1
- Pin 3 — Grid No. 3, Internal Shield
- Pin 4 — Heater
- Pin 5 — Heater
- Pin 6 — Heater Centre-Tap
- Pin 7 — Plate
- Pin 8 — Grid No. 2
- Pin 9 — Grid No. 3, Internal Shield



AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

47 YORK ST., SYDNEY

VC10.87

FIFTY-SIX MEGACYCLES AND ABOVE

STOP PRESS!

50-54 Mc. BAND FOR I.G.Y.

Federal Executive has announced that following representations to the Amateur Administration, approval has been granted for the Amateur Service to use the 50-54 Mc. band until December, 1958.

In view of the MUF going up there is every possibility that Interstate work at least shall soon take place.

56 MEGACYCLES

From Norm Burton, of Sydney, that good friend of the 56 Mc. men, comes amplification of his 56 Mc. note last month concerning the W/VK test schedule. They commenced at 2200 GMT, Sept. 29, and are continuing weekly. The participating stations are in the band section from 56 to 59 Mc., calling 5 minutes twice each hour, commencing 15 mins. and 45 mins. past. They then listen on 28 Mc. for any answer or call concerning these tests. At least six of the W stations have 56 Mc. converters and are eager to have 50/54 Mc. cross-band contacts should the 50 Mc. path be open. Tests conclude at 2200 GMT each Sunday. Gists conclude in four hours in which to try and make the grade.

Predictions indicate a high MUF during November and there is every possibility that the tests could be successful.

This is a definite challenge to the v.h.f. fraternity throughout VK, particularly to those in the northern coastal regions. The Ham made him known in the VK contests by his willingness to work with others, presumably with more knowledge, claimed was impossible. The most recent classic example of this was the W/KHS 144 Mc. link established in July. Many of the old 56 Mc. gang still have their converters and are now challenging to 56 Mc. Why not blow the dust off them and take part in these tests. And the newcomers to 56 Mc. who have never used 50 Mc. set to and build a 50 Mc. converter, or revamp one of those old ones, should try. You will hardly have any trouble. Do not let it be said that the old timers were more venturesome than you are, that you are taking it easy on the reputation they have earned for the Ham in general. Try and make your mark in the relay contests, the DX contests, and should good fortune come your way, accomplish deeds such as breaking of the Trans-Pacific barrier on 50/56 Mc.

As a minor effort compared with the I.G.Y. tests on 49 Mc. from South America using power up to 20 kw. and beamed up the west coast of that continent at U.S.A., but important in its own right, arrangements are in hand to repeat the use of 50 Mc. for the I.G.Y. tests. But more of what details are on hand. Under the VK3 notes is further information concerning auroral observation, this also indicates the need of a 50 Mc. converter, the band to which selected during the I.G.Y. are paying a great deal of attention. Let us tag along with the I.G.Y. V.I.P.s while paying attention to our own v.h.f.s.

DX, until the end of Sept. has just not been there on either 56 or 50 Mc. Even Vern 4LK has heard nothing on 50 Mc. The JA signals apparently staying on their own side of the equator. Previously they have broken through to VK1/VK2 in October, and with conditions as they are, there is no chance that shortly they shall come in again. The MUF has reached well into 40 Mc. lately and suggests well for the future, besides which the band is getting that feel of life in it which is sensed by the experienced operator.

As a mark of interest here are some of the stations active on 56 Mc. VK1—56.003 SWS, ZV5CG, 56.005 SWS; 56.043 JU1; 56.053 30P; 56.083 3AJH (v.o.), 3ZBRN; 56.093 SFS; 56.113 ZSAT; 56.163 ZSCW; 56.213 3ZAU; 56.243 3ZAU; 56.253 3APP; 56.563 3US/3VL; 56.573 3BQ; 56.833 3XK, together with VK1, 3AE, 3AHL, 3ALZ, 3JVF, 3ZAF, 3ZAU, and 3ZBRN. Considering the time, there is quite a crowd of VK4s around 56 Mc., so tune up that fat boys.

The Charters Towers-Townsville path has not yet been cracked on 144 Mc., but tests are continuing and interest remains high. Well built high gain antennae should turn the trick, an assumption well founded on results obtained in long haul work on 144 Mc. in VK3 and VK3. F. O'Dwyer, VK3OF.

NEW SOUTH WALES

Meeting.—The monthly meeting of the V.H.F. and T.V. Group was held at Gore Hill Technical College on Friday, Oct. 18, at 8 p.m. Once again certain to be the holiday weekend, the meeting was not as well attended as usual. However, after a very smart disposal of formal business, those present were treated to a very fine lecture by Mr. Alec Little of the C.I.L. on "Radio Safety", which covered "The Limits of Weak Signal Reception", dealt with noise external to the rx. A vote of thanks was moved by Dave 2AWZ and carried by acclamation.

ZER reported that I.G.Y. rehearsals which had taken place during the month had been most successful, the maximum time taken to pass a warning through the radio network being two seconds.

Monthly Day Fixture.—On Sept. 15 a treasure hunt was held with 2OA hiding the treasure. During the day clues were left at suitable locations by 2OA. Most of these were quite artistic efforts, e.g. the picture of the fox at Rocky Hill, 2OA, gave an accurate picture from each location to some known point. Competitors were able to take one bearing of their own and then proceed to where they hoped to find the clue.

The final location at Parramatta Park included an unshaded hazard in the shape of a V—antenna. 2OA is now known as "Two Bob's Winch". Final scores were 2ZCF and 2ANF tied for 1st place with 12 pts. This type of event seems to be very popular judging by the excellent roll up.

Monthly Night Fox Hunt.—was held on Wednesday, 25 Sept. The starting place being Colac Road. A 100 chain from a vertical straight line hidden in a bushy area of scrub. The event was made a mobile fox hunt and was a huge success. The fox, 2ZAV, who started from an undisclosed point at 8 p.m. had to transmit continuously to keep on the move until 9.15 p.m. and then go to ground.

Points were awarded to the hounds who were successful in intercepting the fox whilst "on the run" and for the round first in at the finish. 2ZBR was the first to intercept the fox, followed by 2ZCF, 3 points, then 2ZWD who in addition to winning a point for being first in at the end, earned 2 points for being second to intercept the fox when mobile.

Scramble.—An announced Scramble was held on Sunday, 29 Sept. Some thirty odd 2 m stations participated, the winners being Bob 2ZCF and 2ZWD who tied.

During the month of September cross band (5 and 2 m) activity has increased in popularity. A new 2 m station, 2ZDF (Newcastle) has been putting a fine signal into Sydney. 2ALU (Wollongong) has been worked by 2EW in Sydney at good strength. 2ALU is back with us after an absence of some years.

VICTORIA

Bigs news this month! Two members of the Ballarat gang have got themselves engaged and on the same day too. Congrats to Bill 3AMH and John 3ZDM. John says he hopes to be back on 144 Mc. before Christmas and Bill hopes to get on the band from Colac shortly.

Another item of interest was the successful launching of a space satellite by Russian Scientists. Press announcements said that it was emitting signals on 1090 and 2000 Mc. It wasn't until before a number of the gang reported hearing the lower frequency signal, but it wasn't until the Saturday evening (5th October) at 7.20 p.m. at the time of writing that the 40 Mc. signal was heard. At the time of writing the only other known to have heard the higher frequency transmission is Alan 3UI. Len 3LN has a good recording of the 40 Mc. signal taken from Fred's receiver so those who haven't heard the signal may get a chance to do so at a V.H.F. Group meeting.

Meeting.—The Sept. meeting was held on 18th and about 20 members attended to hear Jack 3ZDG speak on "Automatic and Remote Control". Jack kept the meeting interested for 1½ hours with his usual style of retelling stories and anecdotes. After the lecture, the rules for the field days were finalized and the meeting closed about 2300 hrs. Ron 3AHJ has promised to come along to the November meeting on the 20th and give a talk entitled "Modern Automatic Equipment". He hopes to have some representative gear on display, so the lecture should be doubly interesting.

There was no fox hunt for the month of September because the usual night was taken up by the Divisional monthly meeting.

Field Day Rules

1. Dates: Nov. 17, Dec. 15, Jan. 26, Mar. 2, and April 20.

2. Scoring: 1 pt. per QSO on 144 Mc., 2 pts. per QSO on 56 Mc., 3 pts. per QSO on 288 Mc., and 5 pts. per QSO on 576 Mc. Double points for all contacts over 100 miles distance.

3. Locations: No one operator or group of operators shall be allowed to operate from the same location more than once.

4. Time Limit: Only those contacts made in any six consecutive hours count for scoring purposes.

5. Contacts: To make a scoring contact operators must exchange readability and signal strength reports plus a 3 digit number, i.e. the same system as used in the R.D. Contest or the Ross Hull contest. In addition, when long distance contacts (100 miles or over) are claimed, the actual distance must be agreed upon by both operators and submitted with the log.

6. Logs containing the usual information must reach Bob SOJ within a fortnight of the contest.

Some of these rules are new; they can be changed but give them a fair go before complaining.

Mention of contests and new rules reminds me to remind those operators interested in the Ross Hull Contest that this season's rules differ greatly from last year's. In particular, operators can contact each other irrespective of distance. Therefore, I should think the winner will have to do most of his operating on 56 Mc. The full details of the rules appeared in August "A.R." on p. 11.

Band Jumping.—Newcomers to 144 Mc. are 2ZCF, 3ZBRN, 3ZEP, and Frank 3OF. On 288 Mc. Ron 3ZDZ is attempting to get a pair of 7183s going. He has no rx to date. 3AMT of Ringwood has made a re-appearance on 288 Mc. after a couple of years absence, but he hasn't been heard at this location as yet.

Ray 3ZAE.—Ray 3ZAE at Colac, now whilst Max 3ZCW, was at Stawell, Vic. Glen 3ZDZ has been on 144 Mc. from his QTH in Ascendale after being silent for some time. Ivan 3ZDI has been inactive of late because he has had a spell of duty at Radio Australia. I had the pleasure of a visit from Max 3ZCW recently. He told me he had hoped to get on 56.15 Mc. but found it like 144 Mc. for him. Identification of a station operating on 144.5 Mc. on 13th Sept. the date of quite a widespread auroral display. The time was between 8.30 and 9.00 p.m. and the signal appeared to be coming from the direction of the aurora. Can anyone help Max?

Well that's the lot for this month, but I would like to make a special appeal for information for next month's notes. From now until early December, I will be kept very busy with examinations and so I will not be able to scout around myself. Thank you, 3ZAC.

SOUTH AUSTRALIA

The main item during the month was the two vivid appearances of the aurora and the effect it had on propagation. All kinds of reports came in from various stations. It is really令人信服. One was that George 5GB heard a VK6 calling Keith SMT and that some VK3 signals were heard in Adelaide.

At this QTH there were several fairly loud auroras on frequencies that were outside those previously reported and identified as VK5s although they could not be called thus. The flutter on them made it impossible to get any modulation and by the same token it was not possible to "DF" them. They were all loudest when the beam was directed to the South, that is into the display itself.

The usual 2 m activities are still below par, presumably the cold is still in the bones, and it will take some time to get things moving again. To VK3 to really live up the 2 m band again.

One metre seems to have plenty of activity in spite of the weather, two newcomers in Colin 3ZXY and Ron 3ZDY being heard recently. Congrats on the entry to Ron. He has an extremely strong signal and he made himself known to the boys at the last W.I.A. meeting.

3JS, who by using 2 watts only with a 6dB transceiver, worked from Morley's Hill to Humberside—get out your 100 watts and multi-millielement fellows and try your luck. These low power rigs really get things done.

Rex 3SK went to Port Wakefield for a week, working schools and towns, he worked 3S and from QTH in the town, he worked 3JS (at Jönning), Al 3ZCR twice (at Norton's Summit) and Brian 3ZBN (from Mt. Loft). Rex's gear was 10W 7183s and \$55 rx antenna being a 5 element yagi up 30 ft. from the house chimney.

(Continued on Page 14)

W.I.A. FEDERAL PRESIDENT'S REPORT

"It is my pleasure to present to you the annual report of the Federal Executive for the period April, 1955 to March, 1957 inclusive, but including important matters which have happened since our last Convention in 1953. There has been steady progress on most matters requiring attention, but it is hoped that the State Committees will remain alert of those aspects still outstanding. Turning now to the details of our operations for the period.

MEMBERSHIP

I am happy to report that our Federal QSL Manager, Mr. Ray Jones, who has carried out his duties in an outstanding manner for over 25 years, was rewarded by being elected a Life Member of the Victorian Division; a small reward for a job well done.

In January, 1955, the Papua and New Guinea Division of the W.L.A. was officially approved, and I had the privilege in July of that year of opening their station, VK3WI, via a tape recording.

With regard to membership generally, there has been only a small increase overall. Our present figures are unfortunately not very accurate due to the fact that all Divisions are not supplying us with the required figures every month—I refer to the detailed statement of the members' grades which the Executive must have in the future. The present figures given are: N.S.W. 755, Victoria 128, Queensland 153, South Australia 369, Western Australia 113, Tasmania 151, and Papua-New Guinea 25, making a total of 2,021. There has been a decrease from December, 1955, up to date only in the vicinity of 250; not a very large number considering that in the same time there has been an overall increase of licensed Amateurs from 20,000 to about 35,000. It is for these figures that the W.L.A. must take positive steps to encourage more new licences and others to join and share the privileges of membership. I cannot pass on this subject without congratulating the Tasmanian Division, who have achieved a pronounced increase in membership whilst other Divisions have just about maintained existing membership.

REGULATIONS

"In May, 1953, the Technician License was introduced and since that time a large number of technically qualified persons have availed themselves of this opportunity to become members on a Limited Amateur Operator's Certificate of Proficiency. In November, 1955, 54-51 Mc. band was released in lieu of the 50-54 Mc. band which closed at the end of January. Also in November we were at long last successful in obtaining permission for Amateur Television Licences and approval of experimental licensing commenced from the 1st May, 1956. To January, 1957, a total of 46 permits have been granted consisting of 19 in VK2, 17 in VK3, 3 in VK4, 3 in VK5, 3 in VK6, and 1 in VK8—a result which has no doubt surprised the Postmaster-General's Department.

"In March, 1956, we successfully negotiated a relaxation in mobile-portable conditions of operation which is already proving to be an incentive for new members to extend their activities. Other negotiations are still under way regarding the Novice Licence, callsign techniques and the issue of VK8 prefixes to the Northern Territory to mention some of the more important ones. Our progress on the Regulations has been slowed down because of the proposed changes in its structure.

"As you know, we took a poll of all members on the change proposed by the P.M.G. Department to 144-145 Mc. in lieu of our existing 144-146 Mc. band. The result was mostly interesting and all the facts are now being correlated to provide a case opposing the change. In general, our negotiations with the Departmental officers have been on the best of terms and our friendly liaison and cooperation maintained.

POLICY

"An earnest attempt was made to hold a 'get-together' Region III. Conference during the period of the Olympic Games in Melbourne in March, but from all the reports received, neither New Zealand and Japan showed any interest and consequently the idea had to be abandoned with reluctance. I still believe it is imperative to pursue this matter, and that to that end we have agreed to New Zealand sending the Region III area again.

In July, 1955, the Federal Policy Book was amended and re-issued, and the Federal Constitution is now available in the amended form. I must mention the matter of the Federal Convention which seems to have been some misconception. Despite contentions to the contrary, your Executive considers they

have acted constitutionally in this matter. The support of six of the seven Divisions indicates confidence in the Executive's actions. I trust that the deliberations of the 24th Convention will obviate any such misconceptions in the future.

FINANCE

"The audited accounts and balance sheet are appended herewith as presented by the Federal Treasurer. It is obvious that for an organisation the size of our own, the balance is particularly small and does not allow the Executive the scope it would have to represent the Divisions effectively. To tried this particular aspect will also be overcome in your deliberations during the Convention.

"AMATEUR RADIO" AND "CALL BOOK"

"The publication, 'Amateur Radio', has been maintained by the Publications Committee under difficult circumstances with rising costs and lack of new advertising the contributing factors. The 'Call Book' has been maintained also, and I think greatly improved since the introduction of new features and visions are always in mind commensurate with additional cost. The idea that profits from this publication would allow an improvement in 'Amateur Radio' have not been forthcoming. The reprinting of selected copies of this book has placed an additional burden on the publishers which should not occur in future. I cannot pass on to other matters without high praise for the Editor and his Committee who have done a difficult and arduous task in the best way possible. They deserve every Division's support to improve our publications still more.

OVERSEAS SOCIETIES

"This year we have maintained our close liaison with the I.A.R.U., the A.R.E.L., the R.S.G.B., the N.Z.A.R.T. and other societies on the friendliest basis. As mentioned else-

where, however, I was most disappointed with regard to moves of Region III. societies who had not even the courtesy to reply to our circular letter. During the period we approached the Minister for External Affairs to present our sincere hope to the Philippine Government that they would soon allow Amateurs to communicate officially with other Amateurs of the world, and we trust this move has had favourable results.

FEDERAL STATION VK3WIA

"In December, 1955, the Federal Station VK3WIA became active during the Pan Pacific Scout Jamboree held at Oxford Park near Melbourne and as a result promoted our objects in encouragement and instruction of radio communication in relation to the Boy Scout Movement. Since that time your Executive have obtained suitable equipment for the official station and with the exception of suitable modulation equipment can put a 250-watt c.w. signal on the air. As soon as this equipment is completed it is the intention to put out regular transmissions and official broadcasts on matters of Divisional interest.

CONTESTS AND CERTIFICATES

"The presentation of the W.A.V.K.C.A. Certificate for overseas Amateurs in May, 1955, has evinced great interest in Australia by DX operators everywhere as it is a much sought-after award. The rates may we have to amend due to the recent VK1 and the VK9 change for the Capital Territory and the VK9 change for the Northern Territory stations, but we hope that the Northern Territory prefix matter may be cleared as well before the rules are altered. The entries for contests have been in the capable hands of the Contest Committee in South Australia, and their report will cover the salient points on this aspect. The reprinting of membership certificates is completed and are available to Divisions for issue to new members.

"An unfortunate accident occurred to the Remembrance Day Contest Trophy this year

(Continued on Page 14)

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE

Balance Sheet as at 28th February, 1957

Current Liabilities	Current Assets
Creditors £31 4 7	Commonwealth Trading Bank—
Accumulated Funds—	No. 1 A/C £98 12 3
Balance 1/3/56 £474 4 3	No. 2 A/C 11 3
Add surplus for the	Cash on Hand 8 0 0
year ended 28/2/57 12 0	Debtors 181 15 11
	Stocks on Hand 104 0 0
	£390 10 10
	Fixed Assets (at cost less depreciation)—
	Eddystone Model "649" £15 0 0
	Receiver 15 0 0
	Trophy, Remembrance Day 8 15 0
	Trophy, Ross Hull
	Memorial 31 6 0
	Filing Cabinet 17 10 0
	Typewriter 42 10 0
	115 1 0
	£506 0 10

Income and Expenditure Account for year ended 28th February, 1957

Expenditure	Income
Badges £4 0 0	Per Capita Payments £175 1 0
Travel Expenses 29 14 0	
Printing and Stationery 3 5 3	
Certificates 20 13 0	
Depreciation 8 8 0	
Audit and Accounting 2 10 4	
Bank Charges 11 1 0	
Sundries 20 8 3	
Telephone 4 8 3	
QSL Bureau 10 18 3	
Federal Contest Committee 27 11 3	
D.X.C.C. Bureau 3 2 1	
Entertainment 22 1 3	
Profit to Accumulated Funds 12 0	
	£175 1 0
	£175 1 0

I have examined the books and vouchers of the Wireless Institute of Australia (Federal Executive). In my opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Federal Executive's affairs as at 28th February, 1957, and that the attached Income and Expenditure Account is properly drawn up to exhibit a correct view of the results for the year ended 28th February, 1957, according to the best of my knowledge and the explanations given to me, and as shown in the books. Stock on hand at 28th February, 1957, has been accepted on the certificate of the Secretary.

R. W. Ellis, Dip. Com., Chartered Accountant (Aust.).

W.L.A. FEDERAL PRESIDENT'S REPORT

(Continued from Page 13)

whilst it was in transit, but it has now been restored to its original splendour. Winners of the Ross Hall V.h.f. Memorial Contest now receive a framed photo in addition to holding the trophy for a period.

CIVIL DEFENCE EMERGENCY NETWORK

"Since the last Convention several national emergencies have occurred which illustrated the useful work of the W.L.A. in maintaining our work carry out in a crisis. The Federal C.D.E.N. Co-ordinator has also had the privilege of attending the Commonwealth Government Civil Defence School at Mt. Macedon, Victoria, on behalf of the W.L.A. Mr. J. Corlett, President of the New South Wales Division this year also attended the school in an official capacity."

"The Federal Co-ordinator has now obtained all the organisational data necessary and forwarded copy to each division for information. It is obvious from his discussions at the Defence School that a network based on sound operating lines must be established for any sudden emergency, and this is the logical role of the W.L.A. I enjoy the great interest shown by government in the Federal plan so that our interests and usefulness will not be lost to the Authorities. There are also other avenues into which our energies may be released and you may rest assured that these are being thoroughly explored by Federal Executive."

OLYMPIC GAMES RELAY

"A relay was carried out on an official basis with the Authorities and the Department co-operated to the extent of sending official cablegrams to not only the Greek authorities but also to any country that might be concerned with the relay. The message of greeting duly left Melbourne, via Gramex, via the Athenic Radio Club and was relayed via various stations to VK7WV/P situated on Mt. Olympus in Tasmania, whence it was sent via VK3WI and presented to the Olympic Organising Committee and delivered to the Greek prior to the opening of the Games. I wish to express my personal appreciation to all who took part and organised it with especial mention to the Postmaster-General's Department who officially organised the administrative and financial side and approval of this unusual but friendly gesture of goodwill."

MISCELLANEOUS MATTERS

"One of the most important matters that Executive was faced with during the period was the re-titling of the W.L.A. to conform with the standards laid down by the Australian Broadcasting Control Board. Representations were made to the Postmaster-General himself and after much publicity by press and radio the matter was satisfactorily finalised and now no longer need be responsible for interference to receivers not complying with the standards laid down, but of course should be encouraged to be helpful where possible to maintain good public relations."

"Another matter of import being dealt with at present is an application for the exemption from sales tax of equipment purchased by Amateurs for experimental purposes. This brief has meant a large amount of research work on the part of the W.L.A., especially in relation to his worth to the community, and has been the means of revealing a lot of incidents which will be duly recorded in the history of the W.L.A. for posterity."

"Several new Listener Groups are flourishing and many young potentials are becoming interested in this way, which when all is said and done, is the way most of us started out in Amateur Radio ourselves. All our younger generation will be encouraged as much as possible so that they will undoubtedly become the Amateurs of tomorrow."

"I think you will agree that the past year has been productive of many new privileges, but there remains a number of outstanding matters which next year should see completed. I wish to express my sincere appreciation to the Awards Manager, the QSL Manager and the Traffic Manager, all of whom carried out their duties in the usual efficient manner. It is with regret that I have to report that Mr. Reg. Jepson has had to resign the post of Federal Traffic Manager and this office has now been taken over by Mr. Reg. Jepson to whom we wish every success."

"My thanks go to the Contest Committee who have carried out their task with an efficiency and zeal, putting on a sound footing the recording of results of contests and the issuance of certificates and awards."

"I cannot let this opportunity pass without recording the honour bestowed by our Gra-

cious Majesty on Mr. Jim Corbin, VK2YC, and Mr. George Glover, VK5AG. Mr. Corbin's M.B.E. was well merited in view of his outstanding work during the N.S.W. flood disasters, and Mr. Glover's Coronation Medal was the result of many years service to Federal Executive in particular and the A.R.A. and Amateur Radio in general. My gratitude is also expressed to all Federal Councillors and other helpers not named in person who have all assisted in the well-being of the W.L.A. Let me not least say the other members of Federal Executive who all helped to make my task as President less difficult and supported me in numerous ways. I thank them all for the unselfish manner in which they have conducted and that they all have confidence to give with me for the future. I can conclude how by assuring you that my own efforts are always at the service of the W.L.A. and that every effort on my own part has been with the prosperity and progress of the Institute in mind."

—W. T. S. Mitchell, VK3JUM, Federal President

YL CORNER

BY PHYL MONCUE*

"SATELLITIS"

We were going to the pictures, we were actually going to have a night out and an event like that, all XYLs will agree I'm sure, doesn't happen very often as there is always a steady stream of other such things to keep OM home on a Saturday evening. It was to be one night when I could enjoy the sort of thing that normal human beings seem to find entertaining and it was really something to look forward to. For one night in my life I wouldn't have to listen to that incessant "CQ. CQ, your signal is so and so, the line up here is such and such, I'm using a pair of something or other in the final." Oh, if I don't know that routine off by heart.

Then half way through the morning the OM came tramping down the path, passing shouting, "Quick, turn on the radio, the whole world is gone mad with excitement!" Well I didn't know about the whole world, but I could certainly see the OM appeared to be imbued with some sort of madness. He was breathless, his eyes were wide, his hands were clenched and excitement was a very mild term for the sensation he was obviously experiencing. Of course, the news was that the Russian satellite had been successfully launched and it wasn't long before our three harmonies and myself were beginning to feel some of his enthusiasm.

The youngest harmonic started to tune up his crystal set, the second harmonic got to work on his one-valver, and the eldest harmonic turned on his brain-child, a glorious contraption it has been designed for several months past especially to receive the satellite from the OM made a wild dive to unearth from amongst cob-webs and years of dust, his 15 metre rig. The harmonics, of course, were all certain they could hear the signal; every second bit of equipment was sending signal to them. The OM, too, had imagination for some time, but then as the satellite, in its orbit, came nearer to us, a signal came through and there was no mistaking that it was coming from the satellite itself. Slowly but surely it became louder and clearer and we had the feeling we would be hearing key clicks at any moment.

The effect on your feelings was very exhilarating as the realisation dawned on you that such a wonderful job had been accomplished in our own home town. To a Radio amateur other great new wonderful world of possibility had been opened up and even XYLs, both the enthusiastic type and the anti-radio ones, could all appreciate this.

My OM rang up every other OM he knew also every other OM that he knows, rang him also. Life became a little easier owing to the signal and telling everyone else about it. Speculations went on as to how they got it up there and how long it would stay up. What they were managing to transmit on the frequencies they were on and how the signal getting through the ionosphere. Didn't we wish it was us who had put it up there?

Oh yes, we were going to the pictures that night. The OM never gave that another thought, and as for myself, I gave it just the briefest and then dismissed it. You know, for once in my life, I wanted to go to the pictures more important than anything else I believe it or not. The satellite signals for the time being, had become the beginning and end of all. Nobody had any desire for meals and that was just as well as there was nobody else around who had any inclination what-so-ever to prepare any.

We didn't go to bed that night till very late, we just couldn't bear to leave the receiver, we had to stay up and listen to make sure the signal was still going and to dwell in every pleasant remembrance on the fact that the signal was still working around there after all that time had passed.

When the satellite began to slow down it was like waiting for the inevitable death of something you regarded highly. You didn't want it to stop but wished it could go on for ever and ever.

Well, we were Ham Radio and Ham husbands do get in your hair and nearly drive you crackers lots of the time, but at times like this, Ham Radio and its allied sciences are just gosh darn interesting even to the anti-est of XYLs."

* 235 Union Road, Ascot Vale, Vic.

FEDERAL, QSL, and



DIVISIONAL NOTES

FEDERAL

50-54 Mc. FOR I.G.Y.

Federal Executive is pleased to announce that following representations to the Amateur Administration, approval has been granted for the Amateur Service to use the 50-54 Mc. band until December, 1958.

In view of the activity in meteor scatter propagation during the I.G.Y. and other fields of experiment, it is expected that the band will regain its former popularity.

VISITORS AT EXECUTIVE MEETING

Some Interstate visitors attended a recent Executive meeting which had been called for the purpose of discussing the forthcoming I.T.U. Conference.

Said visitors had been attending a C.D.O. school at Mt. Macedon and came down especially to hear details of the organisation at the I.T.U.

Bob Goodsell, VK2ARG (VK2 Federal Councillor); Vince Jeffs, VK4VJ; and Evan Fall, VK4EF, were given a warm welcome by the President and entered fully in the discussions.

LIST OF PERSONS WHO QUALIFIED FOR AMATEUR OPERATOR'S CERTIFICATES

New South Wales

L. R. Barber, 1 Roslyn Street, New Lambton.
A. W. Ballantine, 34 Finlayson St., Lane Cove.

M. D. Bested, Box 460, P.O. Griffith.
C. J. Charman, C/o Post Office, Bolwarra.

E. D. Chinn, Box 100, P.O. Griffith.
V. W. Davies, 112 Sutherland St., Paddington.

J. T. Foster, "Avoca" Giala, via Gunning.
R. Grivas, Box 20, P.O. Griffith.

H. E. Jacobs, 8 Whiston St., Griffith.
J. F. Jorgenson, 147 Edinburgh Rd., Castlecrag.

R. E. Lynch, 33 Temple St., Stanmore, Sydney.
R. M. Marsden, 43 Houston Rd., Kingsford, Sydney.

*M. McConville, 122 Warialda St., East Moreton.
W. T. Nicholls, 1 Rex Ave., New Lambton.

T. Rikus, C32 Vowels Rd., R.M.C. Duntroun, Canberra.

G. H. Simpson, 19 Degrance St., West Tamworth.

L. R. Williams, B5 Quarters, Royal Military College, Duntroun.

Victoria

R. J. Abell, 87 Marshall St., Ivanhoe.
S. J. Beaton, 101 McKinnon Rd., McKinnon, S.E.14.

R. A. Chisholm, "Barokee" Main Rd., Lower Plenty.

K. G. Bridger, 26 Wood St., Preston, N.W.
C. G. Broadhurst, 65 Church St., Geelong West.

J. Clark, 2a Setton Place, Camberwell
W.R., Cunningham, Armidale Rd., Sth. Grafton, N.S.W.

R. J. Daldy, 18 Valentine Ave., Horsham.
W. J. Dennis, "Marandee," Hexham.

CONTEST CALENDAR

Compiled by the W.I.A.
Federal Contest Committee.

R.S.G.B. PHONE CONTEST—

Bands: 21/28 Mc. Phone only.
Date: 23rd-24th November.
Rules: As for 1956.

ROSS HULL MEMORIAL—

Bands: 50-54 Mc., 56-60 Mc., 144-148 Mc., 288-296 Mc.
Date: 1st December to 31st Jan.
Rules: As published. Amendment:
50-54 Mc.

B.E.R.U.—

Date: January, 1958.
Rules: As for 1957.

- N. D. Dunn, 6 Sussex St., Blackburn.
- O. P. Fung, 18 Elphinstone Ave., Cremorne.
- J. A. G. Hindmarsh, 13 Bond St., South Morang.
- K. J. Hartigan, Sidonia, via Kyneton.
- W. J. Hewitt, 25 Victoria Ave., Ballarat.
- F. E. Hobson, Devon North, via Yarram.
- J. Hudson, 48 Donald St., Highett.
- A. J. Jackson, Bell St., Balwyn.
- E. L. McCarthy, 512 Bell St., Ballarat.
- L. G. McCluskey, 13 Holloway St., Newport.
- G. J. McDonald, 41 Norman St., Wendouree, West, Ballarat.
- K. J. Moore, 94 Middlesex Rd., Surrey Hills.
- C. P. O'Brien, Sgt.'s Mess, School of Wireless R.A.A.F., Ballarat.
- M. J. O'Brien, 468 Burke Rd., South Canterbury.
- C. W. Quirk, Burwood East P.O. Store, Burwood Rd., Burwood.
- M. A. Trail, 84 Argyle Rd., Kew, E.4.
- C. Thomas, 8 Graham Place, Box Hill, E.11.
- M. A. Webb, 100 St. F. Prahran.
- H. A. Will, 3 Westbourne Gr., Camberwell.
- J. M. Withers, 32 Devon St., Heidelberg.
- L. Zscheg, Parkside, Hamilton.

Queensland

- E. A. Gardiner, 63 Svensson St., West Bunderberg.
- R. D. Gardiner, Mt. Crosby.
- J. D. Griffin, 14 Aubrey St., Camphill, Brisbane.
- W. A. E. Flannery, 229 Gladstone Rd., Dutton Park, Brisbane.
- M. T. Power, 101 Wrls. Regt., Cabarlah Barracks, Caberlah.
- L. L. Sharp, 19 Carl St., Thompson Estate, Brisbane.

South Australia

- L. A. Bull, 14 Harcourt Rd., Payneham.
- D. A. Cartwright, C/o Station SPA, Penola.
- B. A. Underwood, 15 Holme Ave., Lower Mitcham.
- H. A. Fisher, 17th St., Renmark.
- R. C. Grivell, 10 Silver St., Clearview, Adelaide.
- A. B. Headison, 26 Nelson St., Port Pirie.
- K. L. Metcalfe, 60 Castle St., Edwartown, Adelaide.
- R. A. C. Washington, 40 Swaine St., Rose Park, Adelaide.
- G. Wilde, 112 George St., Norwood.

Western Australia

- N. S. Gardner, 24 Frederick St., Midland Junction.

Tasmania

- R. D. Summers, 35 St. Leonards Rd., St. Leonards.
- M. J. Watson, 68 Lochner St., Hobart.

DO NOT FORGET!

The closing date for copy for the January issue is 2nd December.

FEDERAL QSL BUREAU

Cards have recently come to hand from STAR for contacts made in 1955. It never pays to give up hope altogether.

Up to mid September, Chas. VK0AB had worked 106 countries. Apparently previous experience has been a factor in this fine effort.

Bob Cheeseman (G3KDE), who operated VR3G during recent nuclear operations at Christmas Island (Pacific), advises that there are now no Hams left at the island. Bob QRT on 19th August until VR3E/F and made a little earlier VR3G ran 80 watts to a Globe Chief into 232 feet long wire. Rx was an AR8B. Bob previously operated at SUIMQ and SA1TQ. He has confirmed all contacts made from Christmas Island.

APBD advised that the correct address for the APB QSL Bureau is Box 4074, Karachi, Pakistan.

The S.A.R.L. (Johannesburg Branch) has taken the initiative in organising action against commercial stations encroaching into Ham bands. In a circular to other branches and member societies, they suggest ways and means—if concerted action is taken—to force the interlopers from our bands.

The S.A.R.L. stated that during the past seven years since the W.A.S.L. award was introduced, over 1,000 certificates have been issued. They have received many commendations over the nature of the award, which is original and in the shape of a small table cloth. How-

ever, due to rising costs of manufacturing the award and to increased postage charges, they have been reluctantly compelled to increase the charge to 10 Swedish Crowns or its equivalent but NOT in International reply coupons. The amended conditions are available from the VK Awards Manager. Arrangements can be facilitated thereby. Details of the award can submit their confirmations to the VK Awards Manager for checking to avoid the long delay in posting the cards direct to the S.S.A.

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The general meeting of the New South Wales Division was held at Science House, Glebe Street on Friday evening, Sept. Mr. Hans Buckett, VK2AOU, who is known for his articles in "Amateur Radio" and his work on T.V.I., gave a very informative and interesting lecture on the necessity for selectivity in transmitters. The discussion which followed was held in checking harmonic content of different methods of coupling, illustrating each method by drawing the different circuits and setting out in graph form the results of the same. At the conclusion of the lecture was led by Max ZOT and a hearty vote of thanks to Hans was moved by Maurice 2V2.

There were several points of interest arising from the formal business of the meeting. A motion was passed, which had been proposed by Graham 2AGH, "That the Wireless Institute of Australia, should be represented at the International Telecommunication Union Conference to be held in 1959," was discussed and carried unanimously. Member speakers quoted the arguments made by representatives of commercial interests over the last few years of the value the Amateur bands would be to them. Also it was noted that more and more commercial interests, and especially oil frequency allocations. The finding of all speakers was that every effort should be made to ensure that a representative of the W.I.A. attend the Conference in order that our views along with other Amateur Societies are fully voiced.

It was noted with regret that Roy 2HO had, through personal reasons, found it necessary to resign from Council and would be unable to take part in the discussions at the C.D.O. School. It was decided that the vacant seat on Council, Dave 2EO, our Engineer at Dural and well known to you all, was co-opted by Council. Dave takes over all the responsibilities of the Divisional Secretary at Dural. To take over the post of C.D.E.N. after and attend the school at Macedon has become the responsibility of our Public Relations Officer, Bob 2ARG, whose appointment as Federal Councillor for N.S.W. was confirmed by the meeting.

The Chairman, Pierce 2APQ, gave an outline of discussions which had been had on the desirability of obtaining a paid assistant to attend to the large volume of clerical work and a Councillor had decided that the move was long overdue and was essential in order that better service could be given to members generally and particularly those outside the metropolitan area. It was pointed out that at present there is a lack of time on the part of Paid Clerical Assistant and because of this a person who would be required to carry out duties specified by Council under the guidance of the Hon. Secretary. The suggestion of a three-month probation period, commencing 1st October was discussed and a motion that the period be extended until February was carried.

(Members are advised that position has been filled and remuneration is an honorarium.)

Another appointment was also confirmed. The position of Divisional A.O.C.P. Classes has been accepted by Bill 2AWY, of Orange. Our thanks go to Bill for accepting the position.

The Divisional A.O.C.P. Classes will commence on 6th and 7th November, and will be

SILENT KEY

It is with deep regret that we record the passing of:

Ex-VK6LA—John Jamieson.

**ANNUAL
FIELD DAY
N.S.W. DIVISION W.I.A.**

will be held on
SUNDAY, NOVEMBER 17

*

Registration commences 10 a.m.
at the

GOSFORD SAILING CLUB

*

Competitions for all—
7 Mc. Scramble, 144 Mc. Hidden
Transmitter.

held in the Railway Institute rooms, Castle-reagh St. There will be a series of forty-six lectures which will be given by Leon Parr-Smith, 2AOJ. Full details will be given upon application to the Secretary, Box 1734, G.P.O. Sydney.

The meeting also discussed action to be taken in regard to unfinancial members and it was decided to notify all who are unfinancial and take action in accordance with the Constitution.

The Divisional Field Day will be held at Gosford on Sunday 17th November, in the Gosford Sailing Club premises and adjoining Park. A full programme is being arranged for all the usual events, 7 Mc. scramble, 144 hidden transmitter, 2AHTS QTH, 2AWH, 2ARL and events for the XYL, YL and harmonicas. Registration will be at 10 a.m. Come along to the Annual Field Day at the new location.

A successful Field Day was held at Blackall Hill on 5th and 6th October. See the Hunter Branch notes for full report.

As these notes are being written much activity is taking place tracking the Russian satellite's transmissions on 20.092 and 49.005 Mc. Among the stations reported are: 2ADT, 2WHL, 2AHTS, 2ZWH, 2AGH, 2ARL, 2JR, 1A1L, 2APP. No doubt there are many others and it is hoped detailed reports will be sent in to the Federal Secretary for compilation into a complete report from the Amateurs in Australia.

HUNTER BRANCH

The Sept. meeting of the Hunter Branch was held at the usual location with 15 members in attendance. Lionel 2CS lectured on a g.d.o. and illustrated his points with a display of gear. Discussion followed on arrangements for the 6th Annual Field Day and a committee meeting was arranged for Sept. 25 at 2XT's residence to finalise matters.

Quite a few of the locals experienced the peculiar conditions when the Aurora Australis was at its peak on the night of Friday, 12th. Our worthy President, Lionel 2CS, was right on the ball and is forwarding a report to the L.G.Y. people via VK2 Division Hq.

At Maitland, Vic., who is Deputy Sheriff of that fair city, provided the communication in a mock "food emergency" staged by the Hunter Civil Defence Organisation. Although he only transmits on his beloved 10 mc band, Ernie 2FP, the old "Fox Trot Papa," does not miss an opportunity to show off his talents. To Vice-President Stewart 2ZDR who made his debut on 144 Mc. with a DX QSO with Gosford. Billiards champ, Bill 2ZL and his pupil Bob 2AQR have been getting across the Tasman in fine style on 40 mx phone.

Secretary Chas. 2ARV has passed yet another DX and has certainly got in some fine DX's for QSO with 30 Ham's in Virginia this year. All were pleased to hear former Branch member Bill ex-2MC, now TMC, call in on the 2AWX hook up recently. Varley 2SF is another who has been making regular skeds to ZL on 7 Mc. phone. Heard comments to Bill Nichols, who recently got his ticket, and will be adding to the QRN soon. Ears were pricked when 2BZ's call sign was heard on 40 mx, but it was Jack 2ADT on the mike. He was staying at the local school for a few days and visited some of his old Hunter v.h.f. cronies. With spring in the air, our young blood, namely Rodney 2CN, can't spare much time for hammering. Lucky boy!! Harry 2AFA has had a spot of rx trouble, but receiver is 80th and 100th countries confirmed. He is now applying for his DX C.C. Treasurer Bill 2XT will go to town on h.f. and v.h.f. when he gets new 70 ft. poles (complete with cat-walk) erected. A recent visitor to local shacks was Harry 2AWH, who has brought some v.h.f. gear in this area. Leo 2GB has been having a crack at the Ws on 20 mx phone in the early evening.

The next meeting of the Branch will be held at the University of Technology at Tighe's Hill at 8 p.m. on 25th November. Address 2AHTS, the official Hunter Branch Station, each Monday evening on or about 7056 Kc. at 2000 hrs.

BLACKALLS FIELD DAY

The attendance at the 6th Hunter Branch Blackalls Field Day, held on 5th and 6th October, was over 100 persons comprising Hams and their families, associates, visitors and the Radio Inspector.

Those present came from Brisbane, Kempsey, Muscle Creek, Singleton, Cessnock, The Entrance, Gosford, Sydney, Tamworth and Newcastle.

The show opened on Saturday afternoon with heats of the Blindfold Tx Hunt (an event originated by the Hunter Branch). This was followed by a Hidden Tx Hunt on 144 Mc. competition. In 2 minutes the tx was found by Ken 2ANU in 25 minutes, closely followed by

John 4FP with Neil Connors, associate, in 3rd place. Films were shown by Vice-President Stewart and the Saturday events concluded with a business discussion with the State President.

The Sunday events commenced with a 144 Mc. Hidden Tx Hunt from 9 a.m. to 11 a.m. The tx was hidden 6½ miles from the Blackalls Park and was found in 36 minutes by Geoff 2VU in one hour and 2 minutes by Harold 2AHA, and in one hour and 30 mins by John 4FP. Following this was the 2WI broadcast from 2AHTS's QTH and the 7 Mc. Scramble at 11.30 a.m.

After lunch further heats of the Blindfold Tx Hunt were held including heats of the Ladies' Blindfold Hunt. The All-Band Scramble was then held and the activities closed with the presentation of prizes and the presentation of a reading lamp to Pat Lobigier, the District Radio Inspector, who is being transferred from the district.

The results of the Contests were as follows: Ladies' Blindfold Tx Hunt: Mrs. R. Bailey; Mrs. G. Sutherland, 2nd; 144 Mc. Hunt (Saturday): Ken 2ANU, 1st; John 4FP, 2nd; 144 Mc. Hunt (Sunday): Geoff 2VU, 1st; Harold 2AHA, 2nd; 7 Mc. Scramble: Harold 2AHA.



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Flicker or shrinkage of the Television picture often indicates a low line voltage, liable to fluctuate, unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low.

There are many other applications for the A & R Voltage Adjuster, such as, correction of input voltage to Amateur Transmitting and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc., provided that load imposed is within capacity of adjuster. The auto model is quite suitable for these applications.

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Servicemen will find the double wound model an invaluable aid when servicing transformerless T.V. Receivers. The Receiver under test can be safely isolated from the mains supply, thus affording maximum safety and a safeguard against possible damage to valuable test equipment. A separate earth terminal is provided for earthing the receiver chassis to the adjuster if desired.



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A night on home-made receivers for Ham bands drew a good crowd and the pros and cons of many designs was discussed. Converters and their advantages also extended the discussion.

An 80 m. tx hunt was held in the Lovely Park area, a good crowd rolled up. Vic Clarke won both hunts by finding Bob 3IC and K. Mills in quick time.

The recent hobby exhibition in our city saw a strong support from local Hams as over 20 items of equipment were exhibited. 3ZAV and 3ICL did an excellent job in contacts throughout the State on 80, 40, and 2 m.

Ted 3AEE led a discussion on mobile equipment the knows all the answers. The type of power supply, whip antennas, receiver elements, components were detailed, and a list of points on the above was presented.

Our congratulations go to Bill 3BU on his fine recording of signals from the recently released satellite, and his publicity of Ham activities in that location.

See you at the State Convention at Colac on 9th and 10th November.

MOORABBIN AND DISTRICT RADIO CLUB

It's a long time since we have sent in notes on our activities, so here are some to remind those members who are new that we are doing strong. Congratulations first of all to Club President, Stan Beaton, formerly 3ZEB, who has now been able to drop the "B" and become 3ZE. That speaks for itself. Congrats also to member Jack Hudson, who recently became 3ZER. He has now descreted 2 m. for 40 metres, and Jack is active on 2 m. Keep at that key, Jack!

The Club had an emergency get-together on Sunday morning (6th October), when we had to turn out to repair a mast which had come down. The mast was being cleared for a new building. When we got there guy wires on the steel mast had been cut, the mast had come to rest on a nearby tree which in turn had been chopped down, thus leaving the mast to the ground. This sorted the job.

The new tx Gelsco, 307 pi-converter) has been built, thanks to the hard work of Cliff Williams, who made the chassis and cabinet, and Max Nichols, who built the rig. It looks a nice piece of work. Thanks are due to both boys for their hard work and spirit, and many thanks to all who donated parts. When we get a wire up again, and when the power supply is hooked up, then maybe 3APC will be heard on the band again.

The annual general meeting and election of officers will be held on Saturday 15th Nov. and the annual picnic will be held early in December. Watch for the date.

QUEENSLAND

MARYBOROUGH

4DJ is building a converter with high power gain. Graham is doing most of the work operating on 10 and 40 m. quad antennas, hopes to have a quad working on 10 m. 4CB after working a W with his 10 m quad a foot off the ground, he turned it onto the top of his 80' tower and has been getting among the DX. He has had four new antennas and 4KJ and 4HII are still silent, but 4AI is doing some work on his table-top rig. 4BG worked UAGOM in zone 23 on 14 Mc. c.w. At Gympie, 4HZ has his tower completed, but no beam yet. 4LN and 4M are getting gear going on 2 m., so look out you Brisbane 2 m men for some DX soon.

TOWNSVILLE

At the last general meeting the boys were very disappointed that Joe 4HH and the leathers for the radio club had turned up. Quite a number of the other stalwarts were also absent. However the 10 members present settled down to a real honest to goodness rag-chew and the time passed very quickly. Eric 4KX and 4EJ were the first to leave, while 4EJ would be the first to slip off the stool. VK2 and VK5 please note. It was heard on the grape vine that Nick 4WT is disposing of his Ham gear in preparation for assuming double harness. All the best of good wishes to the Club, Nick.

Vern 4LR was again unsuccessful in getting a signal on 144. Down to Townsville even though 4ZAK, 4ZAY, 4CE, 4RW were trying hard with different types of antenna to receive him. Norm 4ND, at Home Hill, is back on the air again after a long absence and is busy trudging along for the Ham bands. Basil 4TK is busy getting his v.f.o. working and suitably calibrated for all bands, and is asking all and sundry for information. Basil 4ZM appears to be having a spell off the air, while 4XK is making a comeback. Andie 4SW can still be relied upon to come up and give

signal reports and if time permits he will join the ragchews. Alan 4BE, John 4DD and Ted 4EJ are still managing to work into England on 10 m. on a few occasions, but band does not hold in more than 30 minutes at a time. Two associate members will face the winter in October for a Z call sign. The gang wish these members all the best at this time.

Amongst the many visitors this month were 3AHJ and 3AHL. Ron and Lance were visiting the north on a flying holiday. I was very glad they dropped in as I now have my SCR522 working again. They were most welcome and enjoyed their stay on South Molle Island and are very fancy free. I paid a visit to Frank 4FC at Ingham, who besides being interested in Ham Radio finds time to be an amateur cook. His wife was busy making an XYL to come. He did not have time to put in the mulleray though when I dropped in. News is very scarce this month due to the fact that I was unable to listen because of a high noise level and low voltage.

SOUTH AUSTRALIA

If anyone ever kicked against the wind, our lecturer at last meeting Ray Tuck, 3BT, did it in a big way. He used to have shared the lecture room with Bob Farnell, but when the last minute had to take to the cot with 'flu so Ray gallantly carried on alone. In spite of this Ray did a splendid job, in first of all setting up the gear, some of which he had never seen before, and then demonstrating harmonic leakages via power lines and methods to minimise them, a vital factor in modern transmitter design. A super-regenerative detector circuit was used as a harmonic indicator, a very successful one at that due to the squeelch which it gave on signal; the output of this was fed to an audio amplifier to enable all present to hear results.

An 8 Mc. xtal osc. was used as a harmonic generator which gave out reliable frequencies from 56 Mc. upwards, controlled by an audio osc. using a 7132 to a 6KV. The power leads from this oscillator hook-up were very ingeniously brought through a network of filters, each with different choking and by-passing which clearly demonstrated the effectiveness of the networks.

The field strength meter, as per 'A.R.' Nov. '56 was on display and is the one the T.V.I. Committee will be using to locate our hammonics when the "call to cure" arrives. A very business-like job of work too. All in all a good 10-to-10 with what that gave us all plenty to think about and some real ideas of what to do and how to do it.

The lecture was preceded by the formal business of the meeting, including the welcome of 15 visitors, amongst whom were R. S. Sanders, VICEC, Pat D. and the VK5KX.

The ballot for disposal gear distributed the whole of the previously acquired emergency equipment, the indicated net members getting first priority and the remainder shared the rest. By the time this is being read, it is expected that the various sets will have been tried out and ready for use. The amount of work in obtaining these items, checking same and final distribution fell heavily on the shoulders of the disposals committee to whom we must give credit for a fine job done.

A very interesting letter from Tom 5TL gives the latest from that neck of the woods, advising a spate of visitors to "The Alice" including Gordon 5XU, Brian 5CA, Graeme 5XV and 5RI. As far as I understand, all in the course of service!

Tom quotes some interesting items on QSL etc., and as his location is a "sought after" one, for me to follow, I have to turn up. Quite a number of the other stalwarts were also absent. However the 10 members present settled down to a real honest to goodness rag-chew and the time passed very quickly. Eric 4KX and 4EJ were the first to leave, while 4EJ would be the first to slip off the stool. VK2 and VK5 please note. It was heard on the grape vine that Nick 4WT is disposing of his Ham gear in preparation for assuming double harness. All the best of good wishes to the Club, Nick.

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QSL to an overseas station. This is bad enough goodness knows, without having the QSL position further confused.

"For the information of overseas stations I would state that, being a much sought after N.T. contact, I have carefully attended to the QSL post and cards have been sent, via the Bureau, for all contacts made unless arranged otherwise.

"SEW has returned to the U.S.A. and might show up under his old call sign of W5SW. 5FM has established himself about 130 miles out from the coast on the air as well. Type 2. Saw him this week. 5AE has been on for days and after flying to Darwin and Queensland, Frank reports calling on several of his VK4 friends, making more friends during his tour and some odd miles away. 5MV reports interest in the erection of a cubical quad for 21 Mc. He is also the owner of a transistor equipped converter for five bands "up" to 28 Mc. Even 5UL was amazed to see such a thing in Australia. Outfit is about 1500 kc. Bob's only howl is that it has no r.f. stage and he is a bit far away from home. His W will work WVEUN."

"My thanks are kindly drawn to a chose and I expect to be coming south early in the new year. Where to? Well, you tell me and we will both know. Everyone seems to be a bit sick over over here, so far as I am concerned, and there is no great interest in the amount of time between this and the end of the year. Have commenced building one of the pre-selectors as per SAX's article, after being assured by SAX that "it is really the good stuff". I like to see or bring the pieces of gear under notice. I have received several comments on it and none unfavourable so far. Here's hoping mine works as well as the others when it is finished."

Many thanks Tom, pleased to be able to include your news for the benefit of those who are anxious to contact you.

The unexpected sometimes presents itself in least expected places, as we found out at a recent Council meeting. It's not known whether the absence of Jim 5PA was responsible or not, but Jim Paris who normally would lead the charge to drive into the community, demonstrated most ably just how versatile was his mind and actions in that regard. The impact on his audience was alarming and the end of the sun programming—ask him for a demonstration some day. There's not a lot entirely in the background on radio matters he reported, and very seriously too, that he had sent in a report on the recent Red Cross transmissions from Europe to the effect that he was able to receive them on 10 m. with strength readable 50 degrees below zero, with strength minus 9 plus. It would be hard to give a report on signal not heard, and to date haven't been able to find out how you don't hear them and if you do, how you fit it into the RST system. Give us the detail Jim for I think it would be handy for some of the phone blokes when a c.w. station calls him! Hi!

Then we have another really interesting character, Len 5AX, who has been carrying out some experiments on infra red lamp heating. Someone told him that the theory of such was that the ray from such penetrated the substance and heated from the centre outwards. Right, well, he wanted to keep to his own ways whilst sitting at the operating console, so installed one of these things to shine on the feet, figuring it wanted to heat the feet and not the shoes. Get it? Well, he was yipping away on 80 when he smelt a strong smell of burnt flesh, prompted a QRZ to investigate. Yes, Sir, the toes were hot all right, in fact the soles was charred and he has kept it to prove the story. Of course, a theory has been suggested that the infra-red ray frequency is such that his feet formed a self resonant circuit—why may be on a new "cooking" method Len, don't give up easily.

You would imagine John 5EXX would have an all-electric-plus house, well, he has even external lighting in a big way for the benefit of visiting car parkers, but falls down on the lawn mower. Not only is the said lawn mower a two-toother, but it has to work all day and night, and when it's down it trips to keep his self fed to make his wool grow. Now that the revenue from the wool can provide the ready to buy chemicals to put on the lawn to keep the grass growing fast enough to keep him the lamb not John fed. And very quickly, boy, he could think up a scheme.

Frank 5MZ has been playing up again, this time in Sydney. Stayed at Bondi with a team of 42 physical culture girls, thence on to Melville and Ballarat. Hope you had time to catch up on some of the VK2 and VK3 boys. Frank,

The Mount Gambier boys are all going strong, Colin 5CJ sometimes on 40, but mostly on 2. Stewart 5M5 not heard on 40, but on 2. Peter 5A8 has been doing some alterations to the sky wires changing the leg lengths of the ve beams, putting them up higher and erecting a tower—a lot of activity behind his place generally. The STW boy still has his bairns, while the young SKU doesn't appear on the bands over much, did the contest toss you Eng? David 5ZAM has knocked the morsle over and will be heard with two-letter call sign soon, Don (Associate) has his b.c. ticket, now contacts to him, so now it's just a Z.W. get cracking on v.h.f.

Claude 5CH has himself a new tower which with beam stop will bring the DX that much closer and easier to work.

Ron 5FY dropped in at an opportune time this week, I think I was about to give the garden away, so over a cuppa we learned about the doings up the gibber way at SWC. The boys there are still keen, even if depleted in numbers these days. Ron busy on mobile gear again now says that "the D.B. is still around" for the raid bomb now graduates to the classy car stage and if it is to sport a mobile rig it will really move up still further.

Keith 5MT and Col 5AL also visited this QTH recently and an enjoyable evening was had by all—that is except poor DX, but then the bands were bad that night, except one contact we had when the DX bloke complained of having a cold and his XYL having taken away his sure-fire cure, to what a supply of cold 50/50. Spoil sports even in KA land apparently.

Wal 5DF, whilst still busy on 50 cycles, manages to get on 40 now and then and also to make some progress on the tabletopper. Alf Mack had his new computer on 40 and 70 and our old-dy Wal 5AF had to have his cubical end of the sep-tember, but poor weather on the days the muscles felt like it and good weather when they didn't, slowed the job down a bit, hope it'll be better next year.

George 5CA and Norm 5YM not heard on these days, how come fellows? Even an occasional break will get you into the feeling again, so let's hear the voices.

WESTERN AUSTRALIA

At the Divisional meeting on 17th Sept. the programme included a discussion and demonstration of "Some Aspects of Modern Sideband Transmitters" by ERIC J. P. JONES. A very able and interesting description of the gear, and this was recorded and broadcast over 6WI on the following Sunday very successfully.

C.O.E. rules are being promulgated for the inauguration of C.D.E.N. in this State. G.MK is in charge of the operations and with his experience in such matters, success is assured. Co-ordination is an essential, and once the network starts to function, an efficient emergency communication system will soon be built up.

As many towns in W.A. are dependent on one single wire for contact with the city, Amateur Radio is the only lifeline left for inter-state emergency use. Quite a number of W.A. Amateurs have indicated their willingness to co-operate, and where there are vital gaps that need filling, a special effort will be made to arrange Amateur participation to provide full coverage.

The 40 mX scramble took place on 22nd Sept. and from observations there must have been a record number of VK6s on the band. An hour between 11 and 12 a.m. and another from 2 to 3 p.m. gave ample time for any stations to make two contacts with the other stations during that day. Over 600 miles separated the northern from the southern QTHs. At the time of writing these notes, results of the scramble are not yet to hand, but the winner, according to the President's Trophy. Last year's winner was 5TH.

This year has been the first for many years that 6WI has provided good coverage with the 40 mX band only, and as the winter conditions are now nearly over, it should not now be necessary to use 60 and 40 mX to cover the near and distant areas.

Short distance communication on 40 and 20 mX seems to have been little affected by the appearance of the Aurora during the latter part of September. The 20 mX coverage remained as usual, or perhaps a little better, but rapid flutter was noticeable on the more distant stations on these bands.

SUG and STW have given their 100 sets a new life by providing a very good modulation by adding SWS and Helsina modulation. 6FD

was for many years on the Goldfields and recently took a few days off to visit the home town. 6DX, no doubt, had the red carpet out: GBE also visited Kalgoorlie and was heard working portable. 6MO is to move from Watheroo when the magnetic observatory is shifted to a new location near Perth. City Hams should then see more of Alans.

We regret to record the death, during September, of an old timer, John Jamieson, of Kalgoorlie. Although John had not held a call sign for many years, the older members will remember him as the original holder of the call VK6LA.

TASMANIA

NORTH WEST ZONE

There is no doubt that we live in a rapidly advancing age. It is only a short time ago that television was head line news as far as its debut in Australia. Now, of course, we have been supplied with an artificial satellite; Hams throughout the world "sat hunched over their receivers" as our newspaper said, early in October listening to the emitted signal. In present one would call the transmitter Airbone. Mobile? In any case it's right out of the call book.

Congrats to Len 7LE and Bill 7YY for their efforts in the matter.

Back to more mundane things I guess. Our bi-monthly meeting was held at the home of Secretary, Max, at East Devonport. Max already has his shack with his home-brew on the bench. Received that is, not intoxicating liquor! All he needs is a tx to go with it. Then he can run a half wave down on 40 mX. Terry Tong, one of our new associates, brought along a transistorized xtal set. Gives loud speaker volume with only 1½ volts on the plate, er, emitter or wherever the h.t.-er-l.t. connects. Well, it works anyway, I heard it.

DO NOT FORGET!

The closing date for copy for the January issue is 2nd December.

By this time our President, Sid 7SF, had arrived, so the meeting commenced. The tape recorder which George Graves has been building for the last two years was produced to replay a lecture given in Hobart recently. Unfortunately, background noise was very severe on two or three occasions during the recording. Good work anyway. George, it worked well.

The meeting closed in harmony with the usual selection conducted by Ted 7EJ, under the chair of T.D.R. and the usual refreshments. Forty-five feet long, no less. Anybody with a spare helicopter to erect same?

President Sid 7SF heard on early in October. Did the satellite scare you, Sid? Leon 7JJ paid a recent visit to Burnie on business and was entertained by yours truly at Wynyard.

PAPUA-NEW GUINEA

This month I would like to give a big welcome to Mrs Ruth Downey who will be the one and only VK9 YL. Ruth hopes to get her old call sign back. She is busy building a house at present so it will be a while before her DX is going again, she would also like to welcome back her son, Vic 5VY. Vic has been silent for some time but now he is back in Moresby he hopes to be here for some time and become active again. Hope it will not be long before we hear you from your new QTH. Her and all the best to D.J. Downey who has got QRT. He is moving to a new location and is dreaming of a WBJK antenna which he hopes to get out of the scrap heap. Norm 5NT is pushing so much power up the antenna that he is having trouble keeping power transformer up. How many have you blown up now, Norm?

I would like to draw everybody's attention to the slow Morse transmission from VK9WV every Friday night at 8 p.m. The broadcast frequency is 14400 kc. Reports on this transmission will be welcome and should be addressed to the Secretary, Box 204, Port Moresby. Student members may have their work corrected if they send it with a stamped self addressed envelope to the Secretary.

A letter was received from F.E. reminding members that they can send guest editorials to "A.R." so if any members of this Division have a pub subject they would like to put forward they would like to hear it. So what about it chaps?

Believe Frank 8FN was a very sick boy while crossing the Coral Sea, travelling on the Bulolo. I thought you were a better sailor than that Frank. A Christmas break-up dinner

will be held in the Brooke Hotel on 20th December and it is hoped to see a good roll up. If any of the members from New Guinea will be in Moresby on that date we would like to see you there, but please notify the Secretary so that a place can be reserved for you. A good night is assured with plenty of 807s, 808s and more 813s, and the best part of the evening will be when the XYLs supply 88s as a dessert.

The next meeting of the Division will be held on Thursday, 28th November at 8 p.m. in the R.S.L. Club Rooms, and it is hoped we will see a good roll up. Until next month best 73 and good DX.

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QRT: For Sale: H. duty dual pwr. supply 300v, 250 Ma, 800v, 200 Ma, 6.3v. and 12v. choke input, 866s, first class job, sacrifice £10. P.A. 814 two metres coils for 20 mx with fil. trans. on chassis, snap £5. H. duty modulator unit, 807s AB2 with s. amp. and power pack on one chassis, 67J, 6C5, 6L6s, needs some under chassis wiring but components in 1st class order, gift £9. A. Shaw, C/o. P.O. South Brisbane, Qld. Phone J 6526.

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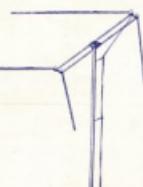
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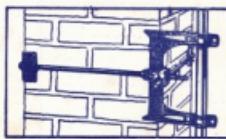


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